

**Remarks/Arguments:**

I. Status of the Application and Claims

Claims 1 and 3-9 are presently pending and under examination. Claims 2 and 10-16 were previously cancelled.

As clarified in the Office Communication mailed May 20, 2011, the Office Action mailed May 9, 2011, was non-final.

The specification has been amended to correct an inadvertent clerical error in Table I on page 12. Support for the amendment is found at page 12, line 4, of the specification as originally filed. No new matter has been introduced.

II. Claim Rejections Under 35 U.S.C. § 103

Applicants traverse the rejection of claims 1, 3 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Kwon et al. US 7,404,701 ("the Kwon reference") in view of Ponsford et al. US 5,799,626 ("the Ponsford reference") and Kim et al. US 4,101,414 ("the Kim reference"). Reconsideration of the rejection is respectfully requested in view of the following remarks.

Applicants' invention, as recited in claim 1 (the only pending independent claim), is directed to a refrigerant compressor comprising:

a hermetic container which internally stores a blended oil formed of a plurality of component oils and also accommodates a compression mechanism for compressing refrigerant gas,

wherein the blended oil ranges from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG8, and

a first component oil includes a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includes a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio.

This means that the blended oil has a viscosity grade not lower than ISO VG3 and not higher than ISO VG8. The blended oil is formed from a plurality of component oils. A first of the component oils has a boiling point at 350° C or over and comprises not less than 10% and not higher than 30% of the volume of the blended oil. A second of the component oils has a boiling point at 300° C or less and comprises not less than 50% and not higher than 70% of the volume of the blended oil.

One of the advantages realized by the present invention is a reduction in the amount of sludge which otherwise tends to be generated during operation of a refrigerant compressor using an oil as a lubricant. In particular, organic materials such as polyethylene terephthalate (PET) which are used as materials for certain components of the compressor (e.g., the stator) typically dissolve in such oils during operation of the compressor. The organic material residue which is dissolved deposits on certain surfaces of the compressor, interfering with its efficient operation. Applicants have unexpectedly discovered that using the particular type of blended oil recited in claim 1 helps to reduce the extent of such deposition. Applicants note that none of the cited references addresses the problem of organic material (e.g., PET) residue deposition. An ordinarily skilled person seeking to alleviate this problem thus would not have received any guidance whatsoever from the references.

The Office Action acknowledges that the Kwon reference fails to teach a blended oil. Applicants respectfully submit that the Ponsford and Kim references fail to cure the deficiencies of Kwon with respect to claim 1.

As best understood by Applicants, the Examiner's conclusions regarding the obviousness of combining and modifying the teachings of the Kwon and Ponsford references to arrive at Applicants' claimed invention appear to be based on the following findings:

- 1) The Ponsford reference teaches that "any ratio can be chosen" to provide a blended oil.
- 2) The Ponsford reference does not disclose the viscosity of the blended oil; rather, the reference "compares" the oil which is obtained with "diesel oil" and states that it is "roughly similar" in viscosity to light oil.
- 3) The viscosity of diesel oil (or light oil) can be between V3 and V8.

4) Accordingly, the blended oil of the Ponsford reference would also have a viscosity between V3 and V8.

Applicants respectfully submit that this reasoning, and thus the conclusion of obviousness drawn therefrom, is flawed.

Firstly, the oil employed in the Ponsford reference is a so-called "styrene oil" and thus is a very special oil, as compared with conventional mineral oil. As shown in Figure 1 of the Ponsford reference, the styrene oil contains a mixture of styrene dimer and styrene trimer (column 5, lines 51-54). Thus, a "natural styrene oil" and a synthetic styrene oil can be mixed in any ratio, since they have very similar chemical compositions. The results obtained from such a mixture of styrene oils cannot be generalized to mineral oils in general. In other words, even if the oils of the Ponsford reference can be mixed in any ratio, this cannot be extrapolated to apply to oils in general.

Secondly, with respect to point 2) above, while it is true that the Ponsford reference compares the oil which is obtained with diesel oil, only the "appearance" is compared (column 5, lines 24-26). The viscosities of the oils are never directly and quantitatively compared. Therefore, even if diesel oil has a viscosity between V3 and V8, this does not mean that the blended oil of the Ponsford reference necessarily also has a viscosity of V3 to V8.

Further, as previously mentioned, Applicants have unexpectedly discovered that when a blended oil meeting the particular characteristics set forth in the claims is employed as a lubricant in a refrigerant compressor, certain advantages are realized. With this particular oil, "it is possible to prevent PET (polyethylene terephthalate) or the like extracted in the lubricant due to evaporation of the lubricant at the discharge reed or the like from being deposited on the surface of the discharge reed or the like." See the original application at page 6, lines 2-4. An ordinarily skilled person would not have found it obvious, from the disclosures of the cited references, that selecting and controlling the components and component properties of the oil in the manner recited in the claims would likely provide such benefits.

Accordingly, for the reasons set forth above, claim 1 is allowable over the cited prior art. Therefore, withdrawal of the rejection and allowance of claim 1 are respectfully requested.

Claims 3 and 5 include all of the features of claim 1, from which they depend. Thus, claims 3 and 5 are also allowable over the cited prior art for at least the reasons set forth above

with respect to claim 1. Therefore, withdrawal of the rejection and allowance of claims 3 and 5 is respectfully requested.

Applicants traverse the rejection of claim 4 as unpatentable over the Kwon reference in view of the Ponsford and Kim references and in further view of Seiki US 5,108,634 ("the Seiki reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the remarks set forth herein.

Applicants respectfully submit that the Seiki reference fails to disclose or suggest "a blended oil formed of a plurality of component oils...the blended oil rang[ing] from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG8...a first component oil includ[ing] a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includ[ing] a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio," as recited in claim 1. Accordingly, Applicants respectfully submit that the addition of the Seiki reference fails to make up for the deficiencies of the Kwon, Ponsford and Kim references with respect to claim 1. Claim 4 includes all of the features of claim 1, from which it depends. Thus, claim 4 is also allowable over the cited prior art for at least the reasons set forth above with respect to claim 1. Therefore, withdrawal of the rejection and allowance of claim 4 are respectfully requested.

Applicants traverse the rejection of claim 6 as unpatentable over the Kwon reference in view of the Ponsford and Kim references and in further view of Nagai et al. US 6,054,224 ("the Nagai reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the remarks set forth herein.

Applicants respectfully submit that the Nagai reference fails to disclose or suggest "a blended oil formed of a plurality of component oils...the blended oil rang[ing] from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG8...a first component oil includ[ing] a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includ[ing] a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio," as recited in claim 1. Accordingly, Applicants respectfully submit that the addition of the Nagai reference fails to make up for the deficiencies of the Kwon, Ponsford and Kim references with respect to claim 1. Claim 6 includes all of the features of

claim 1, from which it depends. Thus, claim 6 is also allowable over the cited prior art for at least the reasons set forth above with respect to claim 1. Therefore, withdrawal of the rejection and allowance of claim 6 are respectfully requested.

Applicants traverse the rejection of claim 7 as unpatentable over the Kwon reference in view of the Ponsford, Kim and Nagai references and in further view of Egawa et al. US 2006/0166844 ("the Egawa reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the remarks set forth herein.

Applicants respectfully submit that the Egawa reference fails to disclose or suggest "a blended oil formed of a plurality of component oils...the blended oil rang[ing] from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG8...a first component oil includ[ing] a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includ[ing] a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio," as recited in claim 1. Accordingly, Applicants respectfully submit that the addition of the Egawa reference fails to make up for the deficiencies of the Kwon, Ponsford, Kim and Nagai references with respect to claim 1. Claim 7 includes all of the features of claim 1, from which it indirectly depends. Thus, claim 7 is also allowable over the cited prior art for at least the reasons set forth above with respect to claim 1. Therefore, withdrawal of the rejection and allowance of claim 7 are respectfully requested.

Applicants traverse the rejection of claim 8 as unpatentable over the Kwon reference in view of the Ponsford, Kim and Nagai references and in further view of Hannibal US 4,252,506 ("the Hannibal reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the remarks set forth herein.

Applicants respectfully submit that the Hannibal reference fails to disclose or suggest "a blended oil formed of a plurality of component oils...the blended oil rang[ing] from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG8...a first component oil includ[ing] a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includ[ing] a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio," as recited in claim 1. Accordingly, Applicants respectfully submit that the addition of the Hannibal reference fails to make up for the deficiencies of the Kwon,

Ponsford, Kim and Nagai references with respect to claim 1. Claim 8 includes all of the features of claim 1, from which it indirectly depends. Thus, claim 8 is also allowable over the cited prior art for at least the reasons set forth above with respect to claim 1. Therefore, withdrawal of the rejection and allowance of claim 8 are respectfully requested.

Applicants traverse the rejection of claim 9 as unpatentable over the Kwon reference in view of the Ponsford, Kim and Nagai references and in further view of Yamazaki et al. US 6,940,204 ("the Yamazaki reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the remarks set forth herein.

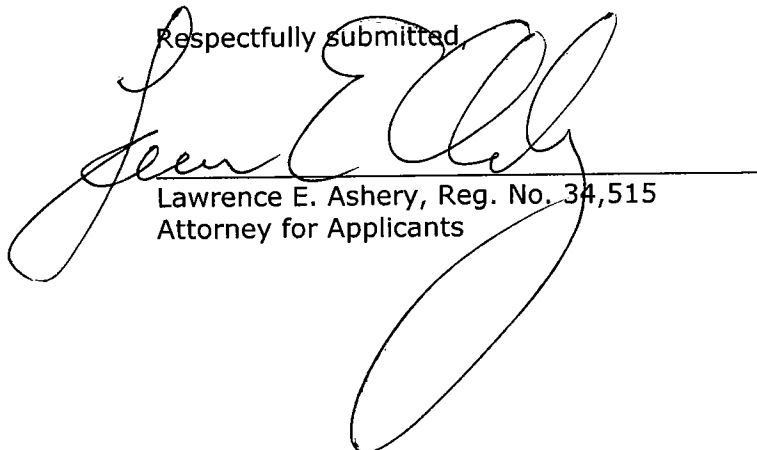
Applicants respectfully submit that the Yamazaki reference fails to disclose or suggest "a blended oil formed of a plurality of component oils...the blended oil rang[ing] from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG8...a first component oil includ[ing] a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includ[ing] a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio," as recited in claim 1. Accordingly, Applicants respectfully submit that the addition of the Yamazaki reference fails to make up for the deficiencies of the Kwon, Ponsford and Nagai references with respect to claim 1. Claim 9 includes all of the features of claim 1, from which it indirectly depends. Thus, claim 9 is also allowable over the cited prior art for at least the reasons set forth above with respect to claim 1. Therefore, withdrawal of the rejection and allowance of claim 9 are respectfully requested.

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In view of the arguments set forth above, the above-identified application is believed to be in condition for allowance, which action is respectfully requested.

Respectfully submitted,



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